APPENDIX I
MONITORING PLAN

FOREST PLAN MONITORING

As part of implementing the Nez Perce Forest Plan, the Nez Perce Forest monitors numerous effects and conditions within the Forest. The Forest Plan Monitoring items are displayed on pages V-4 through V-8, and Appendix O of the Nez Perce Forest Plan. These monitoring activities are applied on a sample basis randomly across the Forest or among projects. Some of that monitoring may occur within the American and Crooked River analysis area. Forest Plan monitoring is reported in an annual monitoring and evaluation report.

PROPOSED MONITORING FOR THIS PROJECT

Monitoring is a process of gathering information through observation and measurement to assure the goals, objectives and standards of the Nez Perce Forest Plan are implemented and to ensure implementation and effectiveness of design criteria or mitigation.

Where additional monitoring is determined to be necessary for specific activities, a detailed monitoring plan will be developed before implementation of those activities. This monitoring plan will specify the monitoring items, objectives, location, protocols, and reporting for each item. The Forest is currently engaged with the IDEQ, EPA, Nez Perce Tribe, and the South Fork Clearwater Watershed Advisory Group to develop an implementation and monitoring plan for South Fork Clearwater TMDL. This will be completed by the end of 2005; and the provisions developed that may pertain to this project will be implemented as appropriate.

Two forms of monitoring are proposed: 1) implementation and 2) effectiveness. These two types of monitoring are described below:

IMPLEMENTATION MONITORING is used to determine if management practices are implemented as specified in the Nez Perce Forest Plan or this EIS.

1. **ALL ACTIVITY MONITORING:** Some level of implementation monitoring would be conducted on all activities and activity areas, as appropriate for each resource. Monitoring would be accomplished by an interdisciplinary and/or multi-party team through a combination of any of the following methods:

    - Review contract specifications
    - Review designs and plans of operation
    - Review contract administration reports (daily diaries)
    - Review activities on the ground before, during, and after implementation.

RESOURCE SPECIFIC MONITORING: The following design criteria, as listed in Chapter 2, Table 2.3 of this document, would be monitored: Numbers in parentheses correspond to those in Table 2.3. The contract administrator generally conducts this monitoring, with resource specialist input, or as indicated. Results from monitoring may require further specialist coordination and adjustment of activities to ensure compliance with the design criteria or documented variances.

a. Road Decommissioning: (10,20, 23,36) Contract administrator and Engineering staff

b. Temporary Road Construction and Road Reconditioning: (10, 11, 23, 33, 36) Contract administrator and Engineering staff

c. Crossing improvements, including upgrades, replacements, and removals: (23, 24, 25, 26, 27, 28, 29) Contract administrator and Engineering staff/watershed specialist

d. Conversion of Roads to Trails: (35) Contract administrator and Engineering staff

e. Hazardous materials handling and transport, including fuel haul, transfer, storage, containment, and spill response (31, 37 (31, 37) Contract administrator

f. Prescribed Fire and Smoke Management: (4, 38, 39, 40) Fuels specialist

g. Timber Harvest: (1, 2, 3) Contract administrator and silviculturist.

   i. Monitoring before implementation: Coordination with presale prep crew during and following unit layout and marking. Silviculturist and sale prep crew.

   ii. Monitoring during project implementation: Timber harvest is occurring as recommended. Contract administrator and silviculturist.

   iii. Monitoring after project completion: – Evaluate the effectiveness of harvest to meet the goals for basal area retention, species mixture, canopy layers, size class, tons per acre woody debris and snag/snag replacement retention. Contract administrator and silviculturist.

h. Invasive Weed Management: (54, 55, 56, 57, 58)

   i. Inspections of equipment and rock material are completed and documented. Contract administrator

   ii. Plant seed, straw, and/or mulch are certified as required and the results are documented. Contract administrator

   iii. Pretreatment is completed and documented following National Standards and protocols. Weed specialist

i. Soil Resource Protection (1, 7, 8, 9, 10, 11, 12, 12, 14, 15, 16, 17, 18) Contract administrator and soil scientist.

   i. Monitoring before implementation: Site-specific review for landslide hazard or prior harvest impacts; consequent adjustment of harvest or compensatory restoration adopted as recommended. Soil scientist with layout crew.

   ii. Monitoring during project implementation:

   Coordination of timber harvest and local soil restoration activities is occurring as recommended. Contract administrator

   Monitoring progress toward compliance with forest plan soil quality standards on tractor units to identify activities, settings, or conditions that result in trend toward non-compliance. Adjust activities to achieve compliance. Contract administrator and soil scientist

   iii. Monitoring after project completion

Evaluate implemented proportion of broadcast burning to machine piling. Soil scientist

Evaluate if whole tree yarding occurred on susceptible materials. Soil scientist

j. Soil Restoration: (19, 20, 21, 22,)

i. Monitoring during implementation:

Monitor that soil restoration on current activity areas is being done as recommended, including scarification, recontouring, addition of slash and litter, seeding, and coordination with logging activities. Contract administrator and soil scientist

Monitor that soil restoration on prior activity areas is being done as recommended, including coordination with road decommissioning. Contract administrator and soil scientist

Instream activities including restoration and stream crossing improvements: (23, 29, 30, 32)

ii. Field personnel responsible for implementing the activity will monitor and report on the effectiveness of relevant design criteria, mitigation measures, and terms and conditions contained in the Biological Opinions' from NOAA Fisheries and US Fish. Implementation monitoring will also be supplemented by resource specialists' on-site visits. The results will be reported in an annual report.

k. Snag and green tree marking done to levels recommended: (44) Contract administrator, silviculturist, ecologist, or wildlife biologist

l. Cultural Resource Protection: (50, 51, 52) Contract administrator and heritage specialist

m. Access Management (34) Contract administrator and district access coordinator

n. Wildlife Protection (41, 42, 43, 45, 46, 47, 48, 49) Contract administrator and wildlife biologist

EFFECTIVENESS MONITORING is used to determine if management practices, as designed and executed, are effective in meeting project objectives, as well as goals, objectives, and standards of the Forest Plan**.**

Effectiveness monitoring would be accomplished using established protocols specific to each criterion. Effectiveness of the following design criteria and other treatment activities would be monitored to determine how they help meet goals and objectives, as listed in Chapter 2, Table 2.3 of this document, and other forest plan direction. The specialist responsible for each resource generally completes the monitoring. This monitoring would generally be done on a sampling basis or with field reviews and quantitative sampling as appropriate.

a. Invasive Weed Management:

i. Effectiveness of invasive weed design criteria to reduce or eliminate spread of existing invasive plants infestations and/or eradicate new infestations. Re-survey risk zones for changes in weed infestations after implementation of design criteria for noxious weeds to insure that weed spread from the ground disturbing actions is minimized or eliminated. Surveys would follow National Protocol for Invasive Plant

Inventory and would document survey areas. Results would be stored in FS National Database (TERRA).

ii. Qualitative post treatment evaluation will be conducted on a sample basis following the Nez Perce National Forest post-evaluation protocol.

b. Soil Resource Protection:

i. Monitor compliance with forest soil quality standards upon completion of activities: using standard R6 protocols on a random 10 percent sample of tractor logging units and 3 percent of cable units. Results will be published in forest monitoring reports.

ii. Monitor compliance with snag/green tree and down wood retention recommendations upon completion of activities: Measurement after logging and fuels treatments to assess retention levels in relation to Appendix K. Use CSE protocols for tree and down wood sampling and randomly selected units. Results will be published in forest monitoring reports.

iii. Effectiveness of road decommissioning and soil restoration to reduce erosion sources: identify sample monitoring sites and before and after photos and characterization.

iv. Effectiveness of soil restoration to improve permeability on scarified or scarified and recontoured sites: Permeability or resistance measurements on compacted and scarified/recontoured sites. Sample a minimum of 10 roads, 10 landings, and 10 skid trail sites, randomly selected, with comparisons to a similar sample of unrestored sites.

v. Effectiveness of road decommissioning and soil restoration to recover native vegetation and ground cover: Vegetation frequency and cover plots 3 to 5 years after decommissioning. Sample a minimum of 10 roads, 10 landings, 10 skid trail sites, randomly selected, with comparisons to a similar sample of unrestored skid trails and landings. Should be coordinated with (b) above. Results will be published in forest monitoring reports.

c. Effectiveness of timber harvest to achieve desired stand density, size class, species mix, cover types and canopy layers.

i. Monitoring will be done on all timber harvest units. The units will be surveyed after the harvest and activity fuels reduction has been completed. Data will be collected on the remaining basal area, species mixture, canopy layers, size class down woody debris tons per acre and snag/snag replacement retention. Results of this monitoring will be documented, after harvest and fuels treatments are completed for a unit, in the annual project monitoring report.

ii. Survey units treated with regeneration harvests.

- Survey for conifer regeneration, document the number of trees regenerating by species.
- Monitoring will occur in the second, third and fifth year following initiation of natural regeneration.

- Surveys will occur in all units treated with regeneration harvests
- Surveys will be done by regeneration exam contract or by Forest Service reforestation crew.
- Accomplishment and results will be entered into the Timber Stand Management Record System (TSMRS) database for reporting purposes.

b. Effectiveness of stream restoration activities to restore fish habitat elements.

c. Effectiveness of prescribed fire and smoke management:

Prescribed Fire: Monitor pre-and post-fire conditions to determine effectiveness of prescribed fire to meet goals and objectives established in the silvicultural prescription. Use a combination of walk-through and photo exams the same season that implementation occurs. In addition, follow monitoring protocols as established in the Nez Perce Forest Programmatic Biological Assessment of the Fire Management Program. Prepare an annual monitoring report to be presented to the Level 1 team by March 1 of each year.

Air Quality: The Monitoring Unit (MU) of the Montana/Idaho Airshed Group is responsible for the daily monitoring of meteorological data, air quality information and planned burning. It is also responsible for notifying all Group members when acceptable limits of smoke accumulation are threatened or exceeded. Meteorological conditions will be compiled daily (Mon.-Fri.) by the MU Meteorologist, who will issue an updated smoke dispersion forecast for the following day at approximately 4pm Mountain Time. The MU will consider existing air quality conditions when determining burn recommendations. Current air quality conditions for smoke sensitive sites in Montana and Idaho will be posted by the MU each day (Mon.-Fri.) by 12pm Mountain Time. The actual recorded air quality values at 8am Mountain Time will be posted in table format along with a color-coded air quality map based on the Environmental Protection Agency's (EPA) Air Quality Index (AQI) levels.

d. Effectiveness of Aquatics

Fish populations will be monitored according to the terms and conditions contained in the Biological Opinions' from NOAA Fisheries and US Fish and Wildlife Service.

- The isolated westslope cutthroat trout populations in Whitaker and Queens Creek will have genetics samples taken to document existing genetic make up for comparison with fish populations in a connected system. Dialog will continue with BLM and research biologists as to benefits associated with connecting two streams to the mainstem river.
- Before and after stream surveys will be conducted in Crooked River where instream improvements are planned. Permanent stations will be located to document fish population responses. These stations will be established in coordination with existing parr monitoring stations monitored by IDFG.

At a minimum, 20% of instream activities will be selected for substrate and turbidity monitoring and identified/reported in the annual report. Three permanent reference (before management activity) transects will be set up on the downstream side of the

culverts/management activities. The sites will be sampled, and will be tested against the reference for a significant change.

Physical attributes of "new" culverts will also be monitored over time. The monitoring will focus on the structural attributes of the culvert, the substrate retention within the culvert, and the substrate distribution within the structure.

e. Effectiveness of Wildlife protection

Monitor compliance with recommendations concerning active goshawk nest area protection. Dialogue will continue between District/Forest biologist and sale administrators, layout and implementation crews regarding observations of wildlife species of concerns outlined in the design and mitigation measures.

OTHER APPLICABLE AND ONGOING MONITORING

AQUATIC MONITORING

- The Idaho Department of Fish and Game maintains a weir at the mouth of Crooked River. Returning adult steelhead and chinook salmon are monitored as well as bull trout. Crooked River is also monitored for chinook salmon redds and permanent parr monitoring stations have been established.
- One permanent monitoring station will be established in Crooked River to assess condition and trend of stream channel morphology and fish habitat. The protocol to be applied is currently being developed in the Northern Region for use in the forest plan revision process. This station will be established in 2005.
- Selected channel morphology sites established by the Nez Perce National Forest in the American and Crooked River watersheds during the Snake River Basin Adjudication data collection phase will be remeasured in 2005. The selected sites will be those potentially affected by the American and Crooked River Project and that can be relocated and re-monumented.
- The Forest will coordinate with BLM to continue fish habitat condition and trend monitoring at existing sites on American River and the South Fork Clearwater River.
- The Forest will coordinate through the South Fork Clearwater River TMDL Technical Advisory Group (TAG) to establish additional monitoring required under TMDL implementation. This TAG is scheduled to initiate in February 2005, with completion of a monitoring plan targeted in 2005.
- Thermographs will continue to be placed in project area streams. A long-term baseline network to track trends will be established as part of the Forest's 2005 Annual Monitoring Plan for Soils, Air, Water, and Fisheries. This baseline network will include sites in American River, Crooked River, and the South Fork Clearwater River. It will be coordinated with federal and state agencies and the Nez Perce Tribe.

PRESCRIBED FIRE MONITORING

- The Programmatic Biological Assessment for the Fire Management Program (South Fork Clearwater River Biological Assessment, 1999 p. 97) specifies monitoring items for the prescribed fire program. These monitoring items include items such as location and size,

mortality levels and patch size, and riparian fire intensity. This monitoring occurs for all fire activities occurring under this Biological Assessment. This monitoring would also be applicable to prescribed fire activities proposed with this project.

NOXIOUS AND EXOTIC SPECIES MONITORING

- On-going monitoring within the South Fork Clearwater River subbasin includes weed surveys to document the extent and changes of weed infestations. In addition, when weeds are treated effectiveness monitoring is conducted on selected sites to determine if the management treatment is effective in reducing the target infestation. This work is coordinated with the community-based weed mgt cooperative through Idaho County Weed Control.

MANAGEMENT INDICATOR SPECIES MONITORING

Forestwide MIS populations monitoring for bald eagle, pileated woodpecker, goshawk, fisher and pine marten are conducted annually for most species with sample plots or transects that occur within or immediately adjacent to the project area. Results are reported in the Forest Plan Annual Monitoring and Evaluation Report.

WOLF RECOVERY MONITORING

The Nez Perce Tribe Wolf Program conducts monitoring of wolf recovery. Recovery continues and wolf numbers continuing growing. Currently, five wolf packs overlap or are in close proximity to the project analysis area.

LANDBIRD POPULATION MONITORING

In 1993, a USFS Region-wide Landbird Monitoring Program was initiated. Sample plots were established along randomly distributed transects distributed across all 13 national forests of Region 1. Monitoring of Neotropical migrant songbird species diversity and populations is currently being done in partnership with non-game biologists of the Idaho Department of Fish & Game and overseen by researchers from the University of Montana (Hutto and Young 1999). Transects are distributed across the Forest and include transects near the project area.

RECREATION AND TRAIL MONITORING

Recreation and trails are inventoried over a 5 year period (i.e. 20 per cent a year) as part of the INFRA data base information collection process. Deficiencies and/or resource damage is recorded as part of the process and will include project improvements.

REPORTING REQUIREMENTS

ANNUAL MONITORING REPORT: Monitor accomplishment of activities over time with an annual report of the past year's implementation and monitoring accomplishments and the planned accomplishments for the next year. Adjust implementation designs to respond to monitoring findings, where modification would better meet objectives of design criteria or Forest Plan standards.

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